Name:_____ Hour: _____ Date: _____

NOTES: Section 4.5 – Solve Quadratic Equations by Finding Square Roots

Goals: #1 - I can write square root expressions in simplest radical form by simplifying and

rationalizing the denominator. 😎 😬 😢

#2 - I can solve quadratics in the form $ax^2 + c$ by finding square roots.

Homework: Lesson 4.5 Worksheet

Warm Up:

1. Factor the following expressions:
   a. $8r^2 + 6r - 5$
   b. $9m^2 + 30mn + 25n^2$

2. Solve the following equation.
   a. $5x^2 + x - 4 = 0$

Review: Simplify the expression.

1. $\sqrt{80}$

2. $\sqrt{6} \cdot \sqrt{21}$

3. $\sqrt{\frac{7}{16}}$

Notes:

Recall some properties of square roots.

- _____:

- _____:

Perfect Squares:										

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Example #1: Simplify the expression.

   1. $3\sqrt{20} \cdot \sqrt{40}$

   2. $\sqrt{180}$

   3. $\sqrt{\dfrac{11}{25}}$

   4. $\sqrt{7} \cdot \sqrt{35}$

Exploration #1: Work with a partner. Simplify the expression.

   1. $\sqrt{\dfrac{17}{12}}$

   2. $\sqrt{\dfrac{6}{5}}$

Notes:

When we get a _____ symbol in our _____,

we need to _____ the _____.

- _____ :

    Examples:

- _____ :

    Examples:

Example #2: Simplify the expression.

1. $\sqrt{\dfrac{5}{2}}$

2. $\dfrac{3}{7 + \sqrt{2}}$

You practice: Simplify the expression.

1. $\sqrt{\dfrac{19}{21}}$

2. $\sqrt{10} \cdot \sqrt{15}$

3. $\dfrac{2}{4 + \sqrt{11}}$

Example #3: Solve the equation.

1. $3x^2 + 5 = 41$

2. $2x^2 - 15 = 65$

You practice: Solve the equation.

1. $z^2 - 7 = 29$

2. $3(x - 2)^2 = 40$

Example #4: When an object is dropped, its height h (in feet) above the ground after t seconds can be modeled by the function $h = -16t^2 + h_0$ where h_0 is the object's initial height (in feet).

For a science competition, students must design a container that prevents an egg from breaking when dropped from a height of 50 feet. How long does the container take to hit the ground?